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09/901,500	07/03/2001	Chia-Pin Lin	JCLA7208	5186

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EXAMINER

KILKENNY, TODD J

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 06/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/901,500

Applicant(s)

LIN ET AL.

Examiner

Todd J. Kilkenny

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 03 April 2003.

2a) ☐ This action is FINAL.

2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-23 is/are pending in the application.

4a) Of the above claim(s) 10, 11, 22 and 23 is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-9 and 12-21 is/are rejected.

7) ☒ Claim(s) 13 is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 7-3-01 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____

4) ☐ Interview Summary (PTO-413) Paper No(s) _____

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Species A1 in Paper No. 6 is acknowledged. The traversal appears to be on the ground(s) that only a single embodiment is disclosed and that all claims are generic to this single embodiment. This is not found persuasive because applicant has clearly defined three separate embodiments in his disclosure; a first preferred embodiment wherein the isolating material is applied by a rolling method (Figure 2); a second preferred embodiment discloses applying the isolating material by a spraying method (Figure 3); and a third preferred embodiment wherein the isolating material is applied by a screen printing method (Figure 4).

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 11, 12, 23 and 24 (newly numbered 10, 11, 22 and 23) are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 6.

Drawings

3. It appears that Figures 1a and 1b should be designated by a legend such as -- Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

4. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not). It appears applicant inadvertently misnumbered the original claims, skipping claim # 9.

Misnumbered claims 10 - 24 have been renumbered 9 - 23 respectively. In the following objection and rejections, the claims are addressed in accordance with their renumbering.

5. Claim 13 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 12. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claim 20 recites the limitation "the adhesive layers" in line 1. There is insufficient antecedent basis for this limitation in the claim as independent claim 13, of which 20 depends from, fails to define adhesive layers.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1 – 5, 7 and 12 – 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Takahashi et al (US 4,400,438).

Takahashi et al disclose a process for producing a fire retardant and heat resistant copper-clad laminated board including the steps of impregnating a base material (e.g. glass fabric) with a varnish compound comprising at least one maleimide resin (taken as applicant's "isolating material"), drying the impregnated base material to prepare a prepreg, and contact bonding under heat and pressure two sheets of copper foil sandwiching the base material ("laminating metal foils on the upper surface and lower surface of the substrate") (Col. 1, line 63 – Col. 2, line 37). Takahashi et al further disclose impregnating by dipping the glass fabric (Col. 8, lines 53 – 66), wherein dipping

is taken to read on applicant's claim of "coating" as recited in independent claims 1 and 13 and furthermore wherein dipping to impregnate the base material with said varnish is taken to anticipate forming a layer of the varnish ("isolating layer") on both the upper and lower surfaces of said base material.

As to claims 2 – 5 and 14 – 17, the varnish of Takahashi et al includes at least one maleimide resin and can also include an epoxy resin (Col. 5, lines 9 – 68).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1 – 7, 9, 12 – 18, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al (US 4,400,438) in view of Watanabe et al (US 3,936,575).

In the event that Takahashi et al's teaching to dip the substrate in resin to impregnate does not anticipate "coating", a second rejection in view of Watanabe et al is provided to render obvious roll coating to impregnate the glass fabric substrate in a copper-clad laminate.

Watanabe et al disclose a method for manufacturing a metal-clad laminate as a baseboard for a flexible printed circuit, consisting of a metal foil and base sheet

composed of a fibrous base material impregnated with a resin composition. The method comprises a roll-laminating process in which an insulating fibrous base material in web form is impregnated with a resin composition by roll-coating, evaporating the solvent in the resin composition in a drying zone to form a B-stage resin composition and then sending the thus treated base material to a press-roll zone where a metal foil is pressed with heating to form the metal clad laminate (Col. 10, line 54 – Col. 11, line 3, Col. 13, lines 9 - 46).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the roll-laminating process of Watanabe et al to the teaching of Takahashi et al as the roll-laminating process as suggested by Watanabe et al is a continuous process that simplifies the course of manufacture and increases the production speed to obtain an economical advantage (Watanabe et al, Col. 2, line 49 – Col. 3, line 14).

As to claims 6 and 20, in the roll laminating process of the secondary reference, Watanabe et al are concerned with equipment rolls that impregnate the fibrous base material with the resin in such a manner as to manifest its adhesive strength to the metal foil and to ensure that the resin may acquire sufficient flow to give the laminate good appearance, including the roll material (i.e. rubber roll against and a steel roll) and the roll position, both of which are equipment parameters (Col. 11, lines 4 – 34).

14. Claims 1 - 4, 6, 7, 9, 12 - 16 and 18 - 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (US 3,936,575) in view of Takahashi et al (US 4,400,438).

Watanabe discloses a method for manufacturing a metal-clad laminate as a baseboard for a flexible printed circuit, consisting of a metal foil and base sheet composed of a fibrous base material impregnated with a resin composition comprising a polyepoxy compound. The method comprises a roll-laminating process in which an insulating fibrous base material in web form is impregnated with the polyepoxy comprising resin (applicant's "isolating material") composition by roll-coating, evaporating the solvent in the resin composition in a drying zone to form a B-stage resin composition then sending the thus treated base material to a press-roll zone where a metal foil is pressed with heating to form the metal clad laminate (Col. 10, line 54 – Col. 11, line 3, Col. 13, lines 9 - 46). However, it appears Watanabe et al fail to disclose laminating copper foil onto both the upper surface and lower surface of the impregnated substrate.

As evidenced by Takahashi et al, metal-clad laminates are known in the printed circuit board art to be formed with metal foils laminated to both sides of an impregnated glass fabric substrate. It therefore would have been obvious to one of ordinary skill in the art at the time of the invention to carry out the metal foil lamination process of Watanabe et al to both an upper surface and lower surface of the impregnated substrate so as to form copper foil sandwiched substrates as are known in the art in producing circuit boards as evidenced by Takahashi et al.

As to claims 2 and 14, Watanabe et al teach epoxy resin impregnated glass cloth as the substrate (Col. 9, lines 33 – 52).

As to claims 3, 4, 15 and 16, the resin composition of Watanabe et al includes epoxy resins.

As to claims 6 and 20, Watanabe et al are concerned with equipment rolls that impregnate the fibrous base material with the resin in such a manner as to manifest its adhesive strength to the metal foil and to ensure that the resin may acquire sufficient flow to give the laminate good appearance, including roll material (i.e. rubber roll against and a steel roll) and roll position, both of which are equipment parameters (Col. 11, lines 4 – 34).

As to claim 7 and 18, Watanabe et al teach that the metals foils can be conductive foils of copper.

15. Claims 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al and/or Watanabe et al (US 3,936,575) in view of Yates et al (US 6,270,648).

Both Takahashi et al and Watanabe et al disclose copper as the metal foil and Watanabe et al further disclose that the surface of a metal foil to be bonded may be subjected to a mechanical treatment or to a chemical treatment (Col. 9, lines 53 – 63), but neither reference fails to positively recite high profile, low profile or reverse copper foil. In US 6,270,648, Yates et al is evidence that different treatments are known to produce high profile, low profile or reverse copper foils to increase the adhesion

strength of the foil to the base substrate in forming metal clad laminates. It therefore would have been obvious to one of ordinary skill in the art at the time of the invention to employ treated copper foil with increased adhesion strength as the copper foil of Takahashi et al and/or Watanabe et al, wherein such treatments are known in the art to produce low profile, high profile or reverse copper foils as evidenced by the secondary reference to Yates et al (Col. 4, line 37 – Col. 4, line 15).

Conclusion


16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Todd J. Kilkenny** whose telephone number is **(703) 305-6386**. The examiner can normally be reached on Mon - Fri (9 - 5).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

TJK
June 9, 2003

TJK


SAM CHUAN YAO
PRIMARY EXAMINER